

Subcommittee Members in Attendance: Lynn Bahrych, Jenny DeGroot, Bob Eagan, Vicki Heater, Ann Jarrell, Judy Meyer, Kimbal Sundberg

Ex-officio, County support staff and members of the public: Tyler Davis, Susan Eshelman, Kelly Hamilton, Wendel Raymond, Kendra Smith, Cathi Winings, Sam Dezheng Zhang

9:03 AM **Convene meeting**

Kimbal Sundberg

9:04 AM **Presentation on False Bay Nutrient Dynamics**

Wendel Raymond/Sam Dezheng Zhang

Kim introduces the presenters and the question – how much of the nutrients that drive large annual green algae (ulva spp.) bloom are terrestrially-derived? Wendel Raymond, now working for WDFW, and graduate student Sam Dezheng Zhang, meeting from Boston. Dr. Brooke Sullivan also collaborated as Sam's co-advisor.

Wendel: Sam will focus today on nutrient and ulva data from False Bay itself, and nutrient data from the mouth of False Bay and the nearshore station at the mouth of the creek. There are other water quality monitoring stations where data were collected; those data are available, and we can discuss next steps for them

Sam: submitted these data for my Master's degree, pursuing publication, "Unraveling Marine and Terrestrial nutrient interplay in False Bay, WA". Concerns about ulva, during summer low tides emits a decaying smell. How does nutrient input from False Bay Creek affect ulva blooms? Methods included water and ulva samples and stable isotope analysis. Results show algal abundance in biomass by month from April-September and monthly summed precipitation. Seasonal patterns in salinity – stable at nearshore, but in mouth of False Bay spikes June-August due to tidal influence. Findings show a seasonal pattern of specific nutrients. Nitrate higher in nearshore relative to Creek mouth in summer. Isotopic analysis was used in a 2016 Penn Cove study looking at seasonal variation in algae blooms and its water source. Our results are more correlated with marine cycles, indicating False Bay algae uses marine-derived nutrients.

Future directions – we suggest that green algae are using marine originated nutrients for growth, but False Bay is unique. Need to assess groundwater, tidal patterns, saltwater intrusion, and add more sampling stations.

Seasonal variation and lack of surface flow in summertime makes analysis difficult, can't measure effect of groundwater. Limited surface flow can amplify effects of agriculturally derived nutrients. Groundwater can supply more continuous flow of nutrients. Some observations about specific parts of False Bay, tidal influences, possibly measuring additional nutrients. Next focus will be groundwater and then try to identify tidal patterns, use meters to collect data, higher frequency sampling at more locations

QUESTIONS

Kendra: what about temperature, for water or air during those two years of sampling?

Sam: in analysis, no significant influence of temperature. We took those data but didn't include in the report

Judy: are there places where there's clear groundwater upwelling in the bay? Or is a more diffuse source?

Wendel: No clear seep in one location, but we haven't looked hard enough. This reminds me of an FHL student project– I can try to track that down. But there's quite a bit of water capture and False Bay is the low point.

Kim: we do regular low tide surveys there; there are places in spring/summer where there are soft "quicksand" spots that harden later in season, likely water percolating up in those places

Vicki: In this county, dynamic process of aquifers discharging to the sea, so there'll be discharge at low tide along the shoreline. If any contamination of wells in the area, that could be a contributing or a dilution factor

Sam: shows diagram, surface water from watershed flowing toward False Bay is from the creek contributing nutrients. But without surface flow, nutrients would be stuck there. Additional rainfall events could help the nutrients infiltrate the soil into groundwater. But we haven't assessed how much of an effect that could have

Kim: if groundwater, wouldn't we have seen some of those terrestrial driven nutrients in stable isotope analysis?

Sam: those data only collected from tissue samples themselves in May and November.

Wendel: the isotope samples from the ulva and water (both creek and nearshore) was opportunistic, so only limited data. Nitrate concentration in the stream samples was so low couldn't get a proper analysis. So, how much

of a role is nitrogen playing in ulva? In summer, there's so much more nitrate available in the ocean, the bay is draining and filling twice a day so potentially much more than from the stream especially in low-flow. But, the Van Alstyne paper from Penn Cove demonstrated how powerful the isotopic approach can be. An isotopic-focused study may provide a lot more clarity on these questions (i.e., copy methods of that paper in False Bay) -discussion of how to read the isotope plots, shows Nitrogen vs. Oxygen, involves marine interactions. Wendel refers to the use of this type of work in the Baltic Sea in Europe to look at the same issue of agricultural inputs. Judy: for a definitive answer, we'd need a targeted stable isotope study with more sampling locations

DISCUSSION OF NEXT STEPS

Wendel: now I'm in a new job, my capacity to work up these data more is limited. About a year ago, I sent around a draft report. These data should be accessible to the County, the Conservation District and FHL,

<https://knb.ecoinformatics.org/view/doi%3A10.5063%2FF1KD1WBG#urn%3Auuid%3Ab9c2928a-c232-4d04-8213-5298bef92661>

The stations that are higher in the watershed have salinity/dissolved oxygen data but nutrient data there shows total nitrogen and phosphorus, not the detailed nitrate and ammonium phosphate plots Sam presented today.

ACTION ITEM: Wendel will reply to the email for this meeting with the Van Alstyne Penn Cove paper and the draft False Bay report, and need to update the dataset online with the final batch from fall 2022,

Wendel: also some water quality data that was part of FHL K-12 outreach from the earlier 2000's,

<https://knb.ecoinformatics.org/view/urn%3Auuid%3Aa42834d4-911d-46cd-a4ec-013e3beef580>

Wendel's name is on both of these – in that data repository, can search for Wendel Raymond or Megan Dethier.

There's some different focus to that study, some fecal coliform data, but it provides a nice reference point.

Vicki: I was involved in those monthly samplings for almost 8 years. How frequent were your samples?

Wendel: Approximately monthly, there was a little more frequency in the fall of 2021 during the FHL class.

November 2021 was the wettest month on SJL in a couple of decades and we sampled immediately after that.

Kim: FHL is a marine lab, probably not that interested in limnology. Who else may want to look at the watershed aspects of these nutrients? Studies show fencing livestock out, shading streams, improving water quality can make a big difference and with Zylstra lake already experiencing cyanobacterial blooms. But where to go next?

Kendra: County has some limited grants, but difficult to prove even after spending lots of money monitoring.

Getting livestock out of creek is common sense for watershed function and that will lead to better water quality.

Wendel: there are entities within the agency WDFW that could be involved. Keep me posted, I'm happy to help.

10:03 AM San Juan County Comprehensive Plan (Water Element)

Kendra Smith

Comp Plan update due in June 2025. Required by State law to add a climate element, our department is leading that conversation, working with Cascadia consulting to formulate public engagement strategy, working out logistics of how to bring this work forward. One issue with the water element is having a drought plan (there are drafts – Vicki, you may know where? Kyle can't put finger on that, we've asked Paul at CD). For the committee, we want folks from the Climate and Sustainability committee as well as our own citizen advisory committees to be ambassadors to the community. Plan to do some training to provide information on some issues. We will try to tap a few folks to help through the summer months, at farmers market etc. to get the word out. Learned a lot from Tourism plan. We want to engage all the way through and have as many ambassadors as we can, so no one can say they've never heard of this. You are subject matter experts on the water front, want to give planning commission ideas that are well-informed based on local knowledge. Lynn, we're tagging you because you're also on Climate and Sustainability committee. If anyone is already attending any fair or event please let us know.

QUESTIONS

- Volunteer to help: Lynn, Jenny, Judy and Kim

Lynn: didn't someone draft a climate element for the last comp plan go around?

Kendra: yes but now we need to comply with new guidance from Dept. of Commerce, also have new information on our greenhouse gas emissions, there could be some changes. We'll have a climate action plan about when we're hoping to hit goals and policies, targets on specific actions that folks would like to see the county take, that'll be an appendix to the Comp plan. Similar to the MSA plan and other planning documents

ACTION ITEM: Kendra can send Lynn and other members the commerce requirements we'll be responding to Kim: To use this committee the most efficient way, we can go back through the water element that committee predecessors did and parcel out editing/bringing it up to date. Would be useful to organize that. Maybe a work session after we've had a chance to look at it, group discussion to decide what we want to update/add.

Kendra: sounds great – we can bundle that up so you each have select reading. We're hoping to generate a series of talking point fact sheets (sea level rise, drought, etc.) we can share those and get some feedback, because that'll be a packet the ambassadors will be talking from. Aiming to do that by sometime in early March. Planning some ambassador trainer session in April. Continue to engage folks through the summer months. Probably quiet in fall with elections etc. taking up time then resume with a game plan going forward. In addition to the comp plan, there's also identifying changes that need to happen in County Code. We'll look at language for storm water etc. That's an implementation task that'll need to be identified as part of this comp plan update.

Kim: is there a new planning director to spearhead this?

Kendra: Right now Kyle Dodd is covering it until we get someone. Meanwhile Groundwater USGS report is on its way, it was originally due in September now should be out this month

Tyler: one option is a CWAC comp plan subcommittee, a focused work group like Kim suggested

ACTION ITEM: Kendra will together pull topics/documents for review, people can self-select for the work group

Judy: what are the open meetings act requirements for a small workgroup:

Kendra: we can't have more than half the committee, then it's considered a committee meeting, I'll look into it

10:20 AM **Cascade Creek Diversion**

Tyler Davis

Email I got from Kelly Hamilton last week, shows some photos of the Cascade Creek diversion with the work that's been done. Tyler reviews physical changes made putting in culvert to shore up some leakage, as photos show. Kelly will provide more thorough update at our regular CWAC meeting

Vicki: my thought about this diversion is that there's a need to be able to monitor and manage it continually, was that part of the improvement to the system?

Kim: this is the ditch that diverts the water out of the Mountain Lake system and diverts to Cascade Lake for Rosario, this is the main diversion and this is their water right?

Vicki: it's a lot more complicated than that, this theoretically provides additional water for the hydro plant, Rosario would have enough water from Cascade Lake

More discussion/clarification about this water

Kim: when we're talking about instream flow in Cascade creek, this is the major diversion out of it

Vicki: my question was always, why is this necessary to provide water? Studies have shown there's plenty of water in Cascade creek for Rosario's needs, it would be ideal to eliminate that diversion altogether but in the meantime monitor and manage it

Lynn: those top two photographs are great for showing the difference from water management and conservation, photos that show real things happening. As Vicki said maybe not necessary but it's good to take precautions.

Anyway, I think those images are very useful

Jenny: this is Moran State Park. It looks to me like a reverse restoration. Rosario still has their amount allowed for hydro, and Vicki I'd agree with you the lake is so high it's sometime spilling out in the road. And Cascade Creek's natural course is to run all the way to Buck Bay and the best thing for salmon would be to let all the water flow through its natural course rather than store in Cascade lake

Vicki: I agree. Having watched this diversion leak for years, we're not conserving water just manipulating it.

Jenny: Moran State park is creating a manmade channel.

Kim: Moran had the original water right and gave it to the park. I agree it would be better used That diversion will have more problems, if it were properly engineered it would be a pipe and not just a ditch in the forest

-more discussion of the situation with the diversion; we have some questions best answered by Kelly

Kelly will be at the February CWAC meeting

ACTION ITEM: We'll include this on the agenda for February, Tyler will confirm Kelly can attend and speak on it

10:32 AM Fishtrap Creek Flow

Tyler Davis

There is a mitigation plan. But because of drought conditions, no spillage from dam into the creek all year.

Tyler: Susan Kirchner from Ecology will reach out soon about steps moving forward. We have a mitigation plan, the question is how it is enforced and flow maintained; whose responsibility is that to make sure it is followed?

- Jenny provides more details about the required vs. actual flow. The Helsells are supposed to supply flow data on a monthly basis, has that occurred and have data been provided to Environmental Stewardship or Ecology?

ACTION ITEM: Tyler will follow up with Ecology to see if Helsells have provided that data to them

Kim: more discussion of the design in the mitigation plan, the preference for flow is Fishtrap Creek but the water is just running through Skull creek and not over the dam spillway. Sounds like the stop-logs have been pulled.

Question is, who is watching the situation? The spillway is engineered and well-designed but not being used

ACTION ITEM: Tyler will ask Ecology to speak about what can be done there at the CWAC meeting next month

Jenny: there is a lot of salmon recovery work people are interested in doing in the lower part of Fishtrap creek but until we have water there, it's hard to invest. Are they required to monitor Skull Creek? Need more information.

And, in Helsell's plan it said they would reevaluate the distribution of flow after five years.

Lynn: is this something the water master could help us with? I'll look into what her responsibility is

Jenny: in the past, that wasn't something Buck had worked on, sounds like that was their engineer's area

ACTION: we'll discuss this at the February CWAC meeting, Tyler will follow up with Kelly after this meeting about that last question of authority over this situation and report back to CWAC when he hears from Susan at Ecology

10:44 AM SRFB Riparian Funding

Tyler Davis

Just a reminder about this funding opportunity, applications due in February. Sam Whitridge gave us some details at last meeting, does anyone have any proposals they wanted to apply for?

Meanwhile applied for the Ecology grant, should find out soon, that may inform how to apply for SRFB funding.

Kim: a couple of places if willing participants, like e.g., lower Cascade creek is still in private ownership in riparian area, could possibly buy a conservation easement to fill out lower area of Cascade Creek.

Then, what about Crow Valley? West Valley Creek? Some landowners there, may be some possibilities

Cathi: Laura in my office may know of opportunity in Crow Valley. I'll ask her or have her join next meeting

Jenny: history of salmonids in that creek, I bet it would apply

-more discussion of the allocation, it's relatively large this year. Deadline is mid-February

Tyler: I have a meeting coming up with some of the other local agencies to ensure we're not competing with each other for money for the same projects, that'll also be informative for how to direct efforts

10:51 AM Adjourn meeting